

IV. Remarks

Claims 1-9, 11-16, and 18-19 are rejected and pending; Claim 1 has been amended; Claims 10, 17 and 20-28 have been cancelled; and Claims 29-37 have been added. With the claims added and amended and the remarks provided below, Applicants respectfully request reconsideration and a withdrawal of all rejections.

Drawings

Figure 1 has been amended to properly show the cross-sectional view of the anti-rotation piston 53. The anti-rotation piston is shown in Figures 4 and 5 of the original application as filed. Therefore, no new matter is added.

Figure 8 has been amended to include the reference numerals "163", "166", and "167". Additionally, Figure 8 has been amended such that the reference line for reference numeral "171" properly shows arcuate surface 171. Paragraph [0029] of the original application as filed refers to the "first radius 163", the "first end 166", the "second end 167", and the "arcuate surface 171". Therefore, no new matter is added.

Figure 9 has been amended to include the reference numerals "170" and "173". Paragraph [0029] of the original application as filed referred to the skirt "outer surface 170" and the "second radius 173". Therefore, no new matter is added.

Specification

Amended paragraph [0029] now consistently refers to the "anti-rotation groove 130" and the "outer surface 170". Paragraph [0029] in the original application refers to the "anti-rotation groove 130" and the "outer surface 170". Thus, no new matter has been added.

Further Claim Clarifications

Claims 29-37 have been added. Independent Claim 29 recites a skirt being defined by a first arcuate surface, a second arcuate surface, and a planar surface.

The planar surface is located between the first arcuate surface and the second arcuate surface. Paragraph [0029] and Figure 10 in the original application as filed disclose "arcuate surfaces 171, 172" and "a planar surface 174". Therefore, no new matter has been added.

Double Patenting

Responsive to the advised potential objections of Claims 21-23 under 37 CFR 1.75 for double patenting, Claims 21-23 have been cancelled.

Claim Rejections - 35 U.S.C. § 112

Responsive to the rejections of Claims 10, 20, and 28 under 35 U.S.C. § 112 as being indefinite, Claims 10, 20, and 28 have been cancelled.

Claim Rejections - 35 U.S.C. § 102(b)

Responsive to the rejections of claims 1, 6, and 10 under 35 U.S.C. § 102(b), *Rasmussen* fails to teach each and every element of a device as claimed in the present application. A claim is anticipated only if each and every element as set forth in the claim is found, either explicitly or inherently described, in a single prior art reference. Claim 1 has been amended to recite that the first radius of curvature is substantially constant between the first and second ends of the piston body. Claim 1 further recites that the skirt extends from the second end of the body and that the body is complementing the bore. Contrarily, *Rasmussen* is absent any teaching of a substantially constant radius of curvature between the first end and second end of the body. *Rasmussen* discloses a piston rod 4 and a piston 3 with substantially different radii of curvature. (*Rasmussen* col 3, lines 51-56, Figure 1). The piston rod 4 in *Rasmussen* connects the crosshead 5 to the piston 3, and the piston 3 complements the cylinder 1. However, the piston rod 4 does not complement the cylinder 1, and the piston 3 does not extend from the crosshead 5. (*Rasmussen* col 3, lines 51-56, Figure 1). Therefore, the piston rod 4 and the piston 3 in *Rasmussen* does not fall within the Claim 1 definition of a piston body. Because *Rasmussen* fails to teach each and every element of the claimed invention, the rejection of claim

1 under 35 U.S.C. § 102(b) should be withdrawn and such action is earnestly solicited.

Claims 6 and 10 depend on amended Claim 1. Thus, Claims 6 and 10 are allowable for the reasons provided above.

Responsive to the rejections of claims 1, 8, and 9 under 35 U.S.C. § 102(b), *Terauchi* fails to teach each and every element of a device as claimed in the present application. As discussed above, Claim 1 recites that the first radius of curvature is substantially constant between the first and second ends of the piston body. Contrarily, *Terauchi* is absent any teaching of a substantially constant radius of curvature between the first end and second end of the body. *Terauchi* discloses pistons: 48, 28, 58, 68, 78, and 88 with substantially different radii of curvature: 483 and the unlabeled section near the reference arrow 48 in Figures 1 and 3, 280 and 281, 580 and 581, 680 and 681, 780 and 781, and 880 and 881. (*Terauchi*, Figures 1, 3, 4, 6, 8, 10, 12, and 14). Because *Terauchi* fails to teach each and every element of the claimed invention, the rejection of claim 1 under 35 U.S.C. § 102(b) should be withdrawn and such action is earnestly solicited.

Claims 8 and 9 depend on amended Claim 1. Thus, Claims 8 and 9 are allowable for the reasons provided above.

Claim Rejections – 35 U.S.C. § 103(a)

Responsive to the rejection of claims 2-5, 11-16, and 18-28 under 35 U.S.C. § 103(a) as being unpatentable over *Rasmussen*, *Rasmussen* does not teach or suggest all the elements of these claims. Dependant Claim 2 and independent Claim 11 include the limitation that the second radius is greater than the first radius, and the Claims were rejected as an obvious optimization of a workable range. However, this parameter is not a mere optimization of a workable range. A particular parameter must first be recognized as a result-effective variable by the prior art before the determination of the optimum variable range can be characterized as routine experimentation. MPEP § 2144.05, Section II, Subsection B. *Rasmussen* does not recognize that the size of the second radius is a result-effective variable, and therefore the limitation is not rendered obvious as a mere

optimum range. Therefore, the rejection of Claims 2 and 11 under 35 U.S.C. § 103(a) should be withdrawn and such action is earnestly solicited.

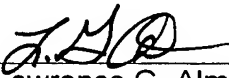
Claims 3-5 depend on claims which depend on Claim 2, and Claims 12-16 and 18-19 depend on claims which depend on Claim 11. Thus, Claims 3-5, 12-16, and 18-19 are allowable for the reasons provided above.

Conclusion

Thus, Claim 1-9, 11-16, 18-19, and 29-37 should be allowed and such action is earnestly solicited.

Respectfully submitted,

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Date



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Attachment: Replacement Sheet(s) of Drawings